

Unit 7

Day 5

Distance Word Problems

Ex1 - SOLUTION ONE*:

George jogged downhill at 6 mph and then jogged back up at 4 mph. If the total jogging time was $1\frac{1}{4}$ hr, how far did he jog in all? $r \times t = d$ $rt = d$

	rate (mph)	time (hr)	dist. m
down	6	$\frac{x}{6}$	X
up	4	$\frac{x}{4}$	X

$t = \frac{d}{r}$
 $r = \frac{d}{t}$

let x = dist. travel down (m)

$$\begin{array}{c} \text{time} \\ \text{up} \end{array} + \begin{array}{c} \text{time} \\ \text{down} \end{array} = \begin{array}{c} \text{tot} \\ \text{time} \end{array}$$
$$12 \left(\frac{x}{4} + \frac{x}{6} = \frac{5}{4} \right)$$

$$3 + 3 = 6 \text{ miles}$$

$$3x + 2x = 15$$

$$5x = 15$$

$$x = 3$$

Ex1 - ALTERNATIVE SOLUTION*: *relies on time down + time up = total time

George jogged downhill at 6 mph and then jogged back up at 4mph. If the total jogging time was $1\frac{1}{4}$ hr, how far did he jog in all?

Ex2: Two buses leave Houston at the same time and travel in opposite directions. One bus averages 55 mph and the other bus averages 45 mph. How long will it take them to be 400 miles apart?

to be 400 miles apart? 400

	45 mph B	55 mph A	
	rate (mph)	time (h)	dist (miles)
Bus A 55 mph	55	t	$55t$
Bus B 45 mph	45	t	$45t$

let $t = t$ into each bus travels to be 400 miles apart.
 dist travel. by 45 mph + dist trav. by 55 mph = 400 miles

$$45t + 55t = 400$$

$$t = 4 \quad \text{4 hrs}$$

Ex. 3

Jose left the airport and traveled toward the mountains. Kayla left 2.1 hours later traveling 35 mph faster in an effort to catch up to him. After 1.2 hours Kayla finally caught up. Find Jose's average speed.

	rate(mph)	time(h)	dist(m)
Jose	j	3.3	$3.3j$
Kayla	$j + 35$	1.2	$1.2(j + 35)$

let j = Jose's avg speed (mph) $j = 20 \text{ mph}$

$$\begin{aligned} \text{Jose's dist} &= \text{Kayla's dist} \\ 3.3j &= 1.2(j + 35) \end{aligned}$$

20 mph

Ex. 4

Chelsea left the White House and traveled toward the capital at an average speed of 34 km/h. Jasmine left at the same time and traveled in the opposite direction with an average speed of 65 km/h. find the number of hours Jasmine needs to travel before they are 59.4 km apart.

HOMEWORK:

DISTANCE WORD PROBLEMS WORKSHEET